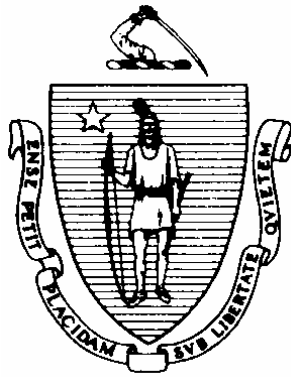


Comprehensive Growth Screening Program for Schools

Massachusetts Department of Public Health



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Comprehensive Growth Screening Program for Schools Massachusetts Department of Public Health

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Comprehensive Growth Screening Program for Schools

I. Introduction

It is important to measure and monitor growth over time in all children as an indicator of health and development (US Preventive Services Task Force, 2005). The goal of the Massachusetts Department of Public Health's (MDPH) Comprehensive Growth Screening Program is the improvement in the health and well-being of school-age children in Massachusetts so that they are healthy and ready to learn. Consistent with this goal, schools are required by law to provide health screenings (M.G.L. Chapter 71, Section 57 and 105 CMR 200.500) and are encouraged to follow up with the results of these screenings with families and primary health care providers

While the annual measurement of a child's height and weight is only one component of a comprehensive growth screening program, screening that combines annual height and weight measurements to calculate the child's body mass index (BMI) enables school health professionals to:

- Monitor students' growth and development patterns;
- Detect growth abnormalities that may indicate a serious physical problem;
- Identify students who may be at nutritional risk;
- Identify students who are at risk for eating disorders; and
- Identify students who are overweight or at risk of becoming overweight.

Poor growth patterns may result from systemic disorders (e.g. malnutrition, intestinal conditions, etc.), psychosocial conditions, congenital disorders (e.g. Turner's syndrome, intrauterine growth restriction, etc.), or conditions of the endocrine system (e.g. hypothyroidism, growth hormone deficiency, etc.). Eating disorders such as anorexia and bulimia can result in both serious long-term health problems and poor school performance. Overweight in children and adolescents is associated with a variety of serious health conditions such as type 2 diabetes and cardiovascular disease (*Comprehensive School Health Manual*, 2007).

The components of the MDPH Comprehensive Growth Screening Program for Schools include:

- Accurate measurement of height and weight and the calculation of BMI;
- Participation and involvement of the entire school community;
- Notification of screening results to parents regardless of screening outcome;
- Identification of resources that support healthy eating and active living;
- Referral to health care provider if BMI is below 5th percentile or above 85th percentile; and
- Follow-up with students, families, and health care providers to assist with identification of resources.

The purpose of this manual is to provide an overview of these components and guidance on how to successfully implement a comprehensive growth screening program. It includes a review of the Massachusetts laws related to growth screening of school-age children, information on the proper use and maintenance of equipment, protocols for collecting accurate measurements, recommendations on when and how to notify parents about growth screening results and suggestions for how to provide referral information and involve the entire school community in the program.

While it is important to obtain accurate information when screening for heights and weights, it is equally important that it be done with respect and in a way that will be sensitive and supportive, as well as accurate (Ikeda and Crawford, 2000). A successful growth screening program is one that is comprehensive and benefits individual students and the entire school community by identifying risk

factors for health problems and educating the school community about the importance of healthy eating and active living.

II. Massachusetts General Laws and Regulations Pertaining to Growth Screening

M.G.L. c.71, s.57, as amended, requires that, in the absence of exemption on religious grounds, school-age children be weighed and measured annually. This information should be recorded in the student's school health record.

Chapter 71: Section 57. Physical examination of pupils; eye examination, written report

The committee, or the board of health in those municipalities where school health services are the responsibility of the board of health, shall cause every child in the public schools, and at the individual request of a parent or guardian of a pupil in a private school which has been approved under section one of chapter seventy-six, and which does not discriminate in its entrance requirements on the basis of race or color cause such pupil to be separately and carefully examined in such manner and at such intervals, including original entry, as may be determined by the department of public health after consultation with the department of education and the medical profession, to ascertain defects in sight or hearing, postural and other physical defects tending to prevent his receiving the full benefit of his school work, or requiring a modification of the same in order to prevent injury to the child or to secure the best education results, and shall require a physical record of each child to be kept in such forms as prescribed by the provisions of section one hundred and eighty-five A of chapter one hundred and eleven.

105 CMR 200.500: Annual Assessment of Physical Growth and Development

The school committee or board of health shall cause each child's weight and height to be measured annually.

III. Essential Elements of a Comprehensive Growth Screening Program

A. Prior notification of students, parents, and providers

- Providing prior notification of the comprehensive growth screening program to all parties concerned is an essential component of program success. Notification is an important opportunity for educating students and parents about the importance of maintaining healthy weight and for increasing understanding and support of the screening program.
- Parents/guardians, students, school administrators and staff and primary healthcare providers (PCPs) should all be informed about the school's growth screening program prior to it being implemented.
- Information on the use and importance of growth screening, Body Mass Index (BMI) evaluation and the method of reporting the results should be provided. (See Appendix A for sample letters of prior notification.)
- In addition to written notification to all involved, it may be helpful to present information at parent and community meetings about the program, including, what the results mean and the importance of good nutrition, physical activity and maintaining a healthy weight.
- Students, parents, and providers should be fully informed about the purpose and process of growth screening.
- Parental notification can take many forms including a notice in a school publication, hand-carried notes to parents, or as part of the student handbook.

- **Parents should be given the opportunity to waive their child's growth screening at school if they provide documentation of it having been completed by their child's Primary Health Care Provider (PCP) during the previous twelve months.**
- Adequate notification of **school administration and staff** will enhance support for the growth screening program and minimize the barriers to securing appropriate space and scheduling classes.
- Local **primary health care providers** will be better able to address follow-up needs and answer questions from concerned parents if they are informed of the program in advance and any resources available through the school.

B. Proper supervision of appropriately trained staff under the direction of the school nurse

- It is recommended that at least two staff conduct the growth screening: one to measure the child and one to record the data.
- The school nurse has the responsibility for training and monitoring screening activities.
- Training should include:
 - Proper use of equipment for accurate and precise measurement;
 - Review of forms for the recording of information;
 - Emphasis on the importance of privacy and confidentiality for the students; and
 - Appropriate communication with students regarding height and weight measurement (e.g. saying "Let's check your weight" instead of. "Let's see how big you are", reassuring students that kids' bodies come in different sizes and shapes, and avoiding labels such as "overweight", "too thin", or "too short").

C. Properly prepared and equipped space for screening

- Adequate time for screening, as well as provisions for student supervision, access to proper equipment, and environmental accommodation are necessary to ensure appropriate assessment and individual privacy.
- Each student should be weighed and measured in private with no other students present.
- Space should be arranged so that confidentiality is assured, in terms of both sight and sound. In order to promote confidentiality of results and reduce anxiety, all students should be weighed and measured facing away from the scales.
- Care should be taken that findings are never accessible to other students or shared with staff (Pennsylvania Department of Health, 2004).

D. Appropriate and well-maintained screening equipment

- Be sure to use appropriate equipment that has been properly maintained and calibrated. (See Section 4: Equipment Maintenance and Calibration.)

E. Protocols to assure privacy of the screening process and confidentiality of results

- Students react in a variety of ways to being weighed and measured at school. Girls are most often concerned about being overweight regardless of their actual size. Boys worry about being short and too thin (Pennsylvania Department of Health, 2004). Screeners should be prepared to be objective, calm and open to students' concerns. Consider the question, "How can this task be done in a way that will promote body satisfaction, a positive image, and high self-esteem in youngsters of all sizes and shapes?" (Ikeda and Crawford).
- Students' growth screening results are part of the health record, and, as such, are strictly confidential and should not be discussed with anyone other than the student and his/her parent or guardian and healthcare provider. Some students may need to meet with the school nurse at a later time to discuss their concerns; be sure to do so in a space that will respect the student's privacy.

Guidelines for Collecting Height and Weight Measurements of Children and Adolescents in the School Setting

Checklist

- ☐ Notify students, parents/guardians, school staff and administrators and local primary care providers prior to implementation of the screening program. Explain the process to parents and let them know when to expect the screening results in the mail.
- ☐ Recruit and train staff.
- ☐ Review confidentiality and communication issues with screeners.
- ☐ Be sure that appropriate equipment is available and has been properly maintained and calibrated.
- ☐ Prepare space for screening. Be sure to provide a private setting for measurement of heights and weights.
- ☐ Report results to parents – respect confidentiality and mail results of screening to the home with a guide for interpreting the results and possible follow-up steps.
- ☐ Provide educational materials on healthy eating and physical activities to parents and primary health care providers.

IV. Equipment and Tools for Proper Measurement of Weight and Height

A. Equipment



For Measuring Weight –a properly calibrated balance beam or strain-gauge floor scale (mechanical or digital) that:

- Can weigh in 0.1 kg or ¼ lb increments;
- Has a stable platform;
- Has the capacity to be “zeroed” after each weight is taken; and
- Has the capacity to be calibrated.

For Measuring Height – a stadiometer that:

- Is able to read to 0.1 cm or 1/8 inch;
- Has a large stable base; and
- Has a horizontal headpiece that is at least 3 inches wide that can be brought into contact with the most superior part of the head (i.e. the crown)



B. Calibration of Equipment and Use of Up-to-Date Screening Tools

1. Check equipment regularly to ensure accurate measurements.

- Scales should be calibrated on a routine basis.
 - Use known weights (a set of standard weights purchased from a sports store) on the scale to check accuracy.
 - Re-calibrate if the scale has been moved to a different surface.
 - Portable digital scales, frequently moved, should be calibrated monthly.
 - For scales that are not moved or used excessively, calibrate annually by contacting your town Department of Weights and Measures.
- Check the stadiometer regularly to be sure the base is stable.

2. If the BMI for students is to be calculated and recorded, proper tools for calculating BMI should be used.

Use one of the following:

- BMI Table, found online at CDC website at <http://www.cdc.gov/nccdphp/dnpa/bmi/00binaries/bmi-tables.pdf>
- OR – a BMI Wheel
- OR – BMI calculation computer software
- OR – a BMI Calculator - <http://apps.nccd.cdc.gov/dnpabmi/Calculator.aspx>

AND plot the results in

- A BMI Growth Chart for boys found at http://www.kidsnutrition.org/images/pdfs_nyc/cdc_bmi_boys.pdf
- OR -A BMI growth chart for girls found at http://www.kidsnutrition.org/images/pdfs_nyc/cdc_bmi_girls.pdf

[Source: US Centers for Disease Control and Prevention (CDC), HRSA's Maternal and Child Health Bureau (MCHB) and the Pennsylvania Department of Public Health]

V. Protocols for Measuring Height and Weight

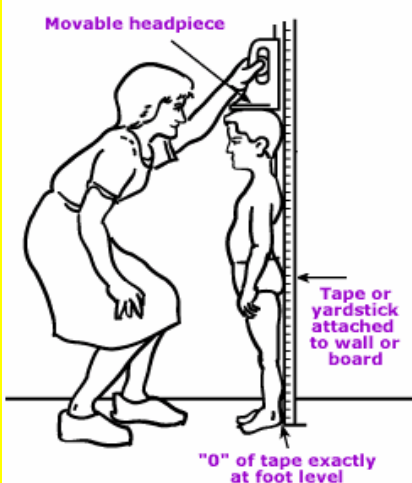
To accurately weigh and measure students, the following procedures should be followed:

A. Weight

- Make sure that the scale is on a firm surface, preferably an uncarpeted floor.
- Set the scale at zero reading.
- Have student remove shoes.
- Have student remove heavy outer clothing, such as sweater, jacket, or vest.
- Have the student step on scale platform, facing you, with both feet on platform, and remain still.
- Read weight value to nearest $\frac{1}{4}$ pound or .1 (1/10) kilogram.
- Record weight immediately on the data form before student gets off scale.
- If using balance beam scale, return weights to zero position.

B. Height

- Have student remove shoes and hat.
- Have student remove hair ornaments, buns, braids to extent possible (note on chart if unable to obtain an accurate measurement, don't "guesstimate" height of hairdo).
- Have student stand on footplate portion with back against stadiometer rule.
- Have student bring legs together, contact at some point (whatever touches first).
- Make sure that the knees are not bent, arms are at sides, and shoulders are relaxed.
- Make sure that the back of the student's body touches/has contact with stadiometer at some point.
- Make sure that the body is in a straight line (mid-axillary line parallel to stadiometer).
Check to see if the student's head is in appropriate position. You should be able to draw a straight (perpendicular) line from the back of the board, past the ear opening and the top of the cheek bone. You can use a pencil or ruler to help check the line. This is called the Frankfort plane.
- Lower headpiece snugly to crown of head with sufficient pressure to flatten hair.
- Read value at eye level; read in an upward direction (from lowest to higher number).
- Measure to nearest .1 cm or $\frac{1}{8}$ inch and record value.
- Repeat measurement, having the child line up again, and record appropriate value immediately on data form.
- Repeat measurements should agree within $\frac{1}{2}$ cm or $\frac{1}{4}$ inch, if they do not, repeat measurement a third time.



Reading Height Measurements

- Read at eye level
- Count visible lines
- If the arrow points at a line, count that line
- If the arrow points between lines, read to nearest line
- Use .5 ($\frac{1}{2}$) line as guide
- Read in upward direction (from lower to higher number)

(PA Department of Health, 2004)

VI. Guidelines for Measuring Non-Ambulatory Students

Assessing the growth status of non-ambulatory students with special health care needs requires special consideration. Therefore, it is recommended that the school obtain the student's height and weight information from his or her primary health care provider.

In general, the purpose of measurements for children who may have atypical growth patterns should be for monitoring the progress of the individual child over time, and not used to compare the child with others, even those who may have similar conditions. Remember that BMI is used to indicate measures of body fatness. With some conditions that involve muscle wasting and abnormal bone growth, the standard BMI reference percentile curves would not be an appropriate comparison point.

(See Appendix C for more detailed information on measuring non-ambulatory students.)

VII. Data Collection – Recording Measurements

- It is recommended that at least two staff conduct the growth screening so that one person can be dedicated solely to recording the measurements. This greatly reduces recording errors.
- Use gender-appropriate growth charts such as the Stature-for-Age Percentiles & BMI-for-Age Percentiles charts that are available on the following CDC website at http://www.cdc.gov/nchs/about/major/nhanes/growthcharts/clinical_charts.htm
 - The Stature-for-Age and Weight-for-Age percentiles show how height and weight increase relative to age.
 - The BMI-for-Age chart shows age-related changes in growth; the weight, height and age of a child are considered in this calculation.
- Record the information of student growth screening on a Massachusetts School Health Record. (See Massachusetts Comprehensive School Health Manual 2007 for sample forms.)

VIII. Referral and Follow-up

Annual height and weight measurements, including calculating the student's BMI, provide a simple and effective method of screening for growth abnormalities and identifying students at risk for growth problems. Results of growth screening should be reviewed on an individual student basis over time, and individual characteristics of each student should be taken into consideration when evaluating the data (for example, an athlete may have a higher than expected BMI for his/her height and weight).

Because BMI measurement is a key factor in tracking a student's overall health status, the parents and guardians of all students should be provided with their child's growth screening results annually, no matter if they fall within range or not. Parents should be provided with guidelines on how to interpret the data on their child along with information about available resources and referrals to address any questions or concerns.

Parents should be reminded that BMI Index-For-Age charts are not intended to be used as the sole diagnostic instrument but instead growth charts are screening tools that contribute to forming an overall clinical impression for the child being measured. (CDC Growth Charts, 2000)

In addition, parents/guardians should be encouraged to consult their child's primary care provider if the student's height/weight measurements are at or below the 5th percentile BMI, at or above the 85th percentile BMI, or indicate a possible deviation from an expected growth curve for that child.

In order to protect the confidentiality of individual screening results, growth screening results should be mailed directly to the parents/guardians, not sent home with the student. When possible, for screening results substantially out of range or of particular concern, it may be appropriate to personalize letters or place a phone call to the student's parents/guardians.

Finally, it is important to include information about resources that will help students and parents/guardians avoid health risk factors and practice healthy life habits in the letter reporting growth screening results. Resources and referrals to nutrition, physical education, recreation, mental health counseling, stress management, and dysfunctional eating can be incorporated in messages to families in the school community. (See Appendix D for a list of resources that can be used to provide families with additional information concerning healthy weight.)

IX. References

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X. Appendices: Sample Materials and Resources

- A. Pre-Screening Notification Sample Letters
- B. Post-Screening Reporting Sample Letters
- C. Guidelines for Measuring Non-Ambulatory Students
- D. Resources

A: Pre-screening Notification Sample Letters

1. SAMPLE LETTER: Notification to School Faculty and Staff

[School Letterhead]

Date: xxxx

Dear Faculty and Staff:

I am writing to inform you about our annual student growth screening program so that you, along with students, parents and the community, can help make this year's program a success.

The state's Growth Screening mandate, (M.G.L. c.71 s.57) requires that all schools annually collect height and weight measurements of students. We will be using Body Mass Index (BMI) is a "weight for height for age" index that can be a useful tool in early identification of possible health risk factors among developing children and youth.

The results of the growth screening will be kept confidential in each student's school health record, and sent home to parents/guardians along with a description of the screening program and a recommendation to share the results with their child's primary health care provider.

Because students may react in a variety of ways to being weighed and measured in school, it is important that you be aware that this screening is taking place, and can respond appropriately to any concerns. For example, if a child makes a negative comment about his/her body, a sensitive response might be, "Kids come in different sizes and shapes." You can help by being objective and open about your students' concerns in your responses.

The screenings will be conducted on *[Insert dates]* in *[Insert locations]*. Letters with information for parents/guardians will be sent on *[Insert date]*.

This program presents an opportunity for our school to coordinate efforts to communicate with students, parents, and the community about the positive steps we are taking to support healthy eating and physical activity. At the present time, we provide *[Insert programs that are coordinated within the district and/or school to encourage healthy eating and active living for both students and staff]*, and are planning *[Insert information about the positive things you would like to start at your school (e.g., school health council, parent presentation, physical education programs or health education classes, etc.)]*

Please take a moment to stop by my office, or email me to let me know if you have any questions about this screening program or if you'd like to be a part of our school's efforts to create a healthier environment. Together we can make a real difference in the health and wellness of our students!

Thank you for your time and consideration.

Sincerely,

School Nurse

2. SAMPLE LETTER: Pre-screening Notice to Parents/Guardians

[School Letterhead]

Date: xxxx

Dear Parent/Guardian:

This letter is to let you know about the annual Student Growth Screening Program that will be happening soon at your child's school.

Every year, all primary and secondary schools in Massachusetts must record the weight and height of each student so that parents and guardians can get a report on their child's growth that year.

It is important to measure children's growth every year because, if there is an unusual growth pattern, it may mean there could be the risk of a health problem either now or in the future.

In addition to measuring height and weight, we use a standard screening tool called the "Body Mass Index" (BMI) that uses these measurements to help identify children who may be at risk for specific health problems.

Your child's screening will be supervised by the school nurse, and the student's privacy will be respected at all times. The results of your child's height, weight, and BMI measurements are strictly confidential – the results will be kept restricted in your child's school health record and sent to you by mail.

We encourage you to share these results with your child's health care provider. Your doctor or nurse is in the best position to evaluate your child's overall health.

If your child's health care provider has already measured your child's height and weight within the past 12 months, please have that information sent to me [insert date] and we will not weigh or measure your child at school.

The purpose of the program is to give you information about your child's growth pattern and to increase community awareness of the importance of healthy eating and active living. In [school or district], we address our children's health and wellness with a comprehensive approach that includes health screenings, physical activity programs, nutrition, and health education.

This school is very interested in making sure that children are healthy and ready to learn. This year, the Growth Screening Program will again be part of our efforts, and will take place in *Insert month of screening*. All children in grades *Insert grade level* will have their height and weight measured, and also have their Body Mass Index (BMI) calculated.

Please feel free to call me, your child's school nurse, at *Insert phone number* with any questions you may have about the Growth Screening Program. Additional information about children's wellness and fitness is available upon request.

Sincerely,

School Nurse

[Insert superintendent or principal name]

[Insert title]

3. SAMPLE LETTER: Pre-screening Notification of Local Primary Care Providers

[School Letterhead]

Date: xxx

Dear Primary Care Provider:

The health and wellness of our children is a national priority. However, the latest federal data continue to show increases in rates of childhood obesity and incidence of eating disorders. The United States Department of Health and Human Services estimates that, by 2010, 20% of children and youth in the United States will be considered obese. Researchers have found that childhood obesity is associated with a number of disorders including hypertension, insulin resistance, sleep apnea, menstrual abnormalities, and orthopedic problems.¹

The [Insert school name] will be completing its annual growth screening during the week of [Insert date]. We will be measuring the height and weight of each student and calculating the Body Mass Index (BMI) for each child using the Centers for Disease Control (CDC) calculations for BMI-for-Age charts.

Parents and guardians will be notified of the results of this screening for each of their school-age children. Letters will be mailed to the home of each student following the screening [insert parent notification letter]. A recommendation for a referral to their child's primary care provider will be made to the parents/guardians of those children whose height and weight screening place them in a lower than 5 percentile or greater than 85 percentile of BMI for age.

The American Academy of Pediatrics has recognized the critical role pediatricians play in stemming the epidemic of overweight and obesity in children and adolescents.² We encourage you to incorporate some of the nutritional information also enclosed in this letter to assist you in providing your patients (and their parents and/or guardians) tools to make healthy choices.

Please be aware that the [Insert school name] and/or the town of [Insert town name] have several resources available to help combat obesity in our youth. Physical activity resources include: [Insert list of resources].

To assist in identifying community resources to promote healthy eating and physical activity, we are including a resource list and link to the following web site: (http://www.mass.gov/dph/fch/nutrition/contact_us.htm).

Other resources that you may find useful include:

- The ADA's Clinical Practice Recommendations for 2004 are available at http://care.diabetesjournals.org/content/volume27/suppl_1/
- 5-2-1 Jump Up and Go! Clinician Toolkits are available by calling Blue Cross and Blue Shield of Massachusetts at 617-246-3924.

If you have any questions concerning the Growth Screening Program being done at the [Insert school name] School, please contact either [Insert principal name], the school principal at [Insert principal's phone] or [Insert school nurse name], the school nurse at [Insert phone number].

Thank you for your efforts to keep your patients and our students, healthy.

Sincerely,
School Principal

School Nurse

¹ United States Government Accountability Office, *Childhood Obesity: Factors Affecting Physical Activity*, GAO-07-260R (Washington, D.C.: Dec. 6, 2006).

² American Academy of Pediatrics Committee on Nutrition. Policy Statement on the Prevention and Treatment of Pediatric Overweight and Obesity. Pediatrics Col. 112 No. 2 August 2003.

B: Sample Letters Reporting Individual Screening Results

1. SAMPLE LETTER: Screening Results for Parents/Guardians

[School Letterhead]

Date: xxxx

Dear Parent or Guardian:

Your child, *[Insert name of student]*, has been measured for height and weight as part of our school's annual Growth Screening Program. A Body Mass Index (BMI) for Age percentile (ranking) was also calculated.

The purpose of the Growth Screening Program is to inform you about your child's growth pattern, alert you to any potential health problems related to your child's measurements, and remind you of the importance of healthy eating and active living.

The result of your child's growth screening is strictly confidential, and will not be discussed with anyone other than you and your child.

Your child's measurements were:

Height: _____ Weight: _____

Body Mass Index-for-Age-percentile: _____

Please note that many factors other than height and weight (such as participation in sports or family history) influence your child's growth. The BMI is simply a screening tool, not a diagnosis of the presence or absence of health risk.

All children benefit from eating well and being physically active. As a partner in supporting the health and well-being of your child, we are working to improve nutrition and opportunities for physical activity by *[Insert school plans or activities here and how they can get involved]*.

Please share the results of the Growth Screening with your child's health care provider. If you do not have health insurance or your child does not have a regular health care provider, please contact us for information about obtaining health insurance coverage or finding a provider. If you have any questions, please call me, the school nurse at *[Insert phone number]*.

Sincerely,

School Nurse

2. SAMPLE LETTER: To parents of children below the 5th percentile or above the 85th percentile that includes screening results and makes reference to physician referral letter that is to be included in the mailing

Date: xxxx

Dear Parent/Guardian:

[Insert name of student] was measured for height and weight as part of our school's annual Growth Screening Program. A Body Mass Index (BMI) for Age percentile (ranking) was also calculated. The BMI is used as a guideline to help assess whether a person is at a healthy weight, overweight or underweight. The purpose of the *[Insert name of school]* school's Growth Screening Program is to provide you with information about your child's growth pattern and to increase awareness of the importance of healthy eating and active living. The result of your child's growth screening is strictly confidential and will not be discussed with anyone other than you and your child.

Your child's measurements were:

Height: _____ Weight: _____

Body Mass Index-for-Age-percentile: _____

BMI is a screening tool and should not be considered the only or final measure of overweight or obesity. Many factors, such as sports participation or family history, can influence your child's growth.

All children benefit from eating well and being physically active. As a partner in supporting the health and well-being of your child, the *[Insert name of school]* is working to improve nutrition and opportunities for physical activity by *[Insert school plans or activities here and how they can get involved]*.

Please share the enclosed letter that documents the results of the growth screening with your child's health care provider. If you do not have health insurance or your child does not have a regular health care provider please contact us for information about obtaining health insurance coverage or finding a provider. If you have any questions, please call me, the school nurse at *[Insert phone number]*.

Sincerely,

School Nurse

3. SAMPLE LETTER: Physician notification post client/patient screening to be included in the mailing to parents of children below the 5th percentile or above the 85th percentile:

Date: xxxx

Dear Health Care Provider [*or “Physician” or name of physician*]:

This letter is to notify you that your patient, [*Insert student name*], was measured for height and weight during the [*Insert school name*] School’s annual growth screening program, as mandated by (M.G.L. Chapter 71 Section 57 and 105 CMR 200.500 in Massachusetts). In addition to height and weight, the child’s Body Mass Index was also calculated yielding the following results: BMI _____ Percentile _____.

To assist in identifying community resources to promote healthy eating and physical activity, we are including a resource list and link to the following web site: http://www.mass.gov/dph/fch/nutrition/contact_us.htm. An additional local resource is the 5-2-1 *Jump Up and Go!* Clinician Toolkit that is available by calling Blue Cross and Blue Shield of Massachusetts at 617-246-3924.

We welcome your feedback and any recommendations you may have that will help in planning for this child’s school program. If you have any questions concerning the Growth Screening Program being done at the [*Insert school name*] School, please contact either [*Insert principal name*], the school principal at [*Insert principal’s phone*] or [*Insert school nurse name*], the school nurse at [*Insert nurse phone*].

Thank you for your efforts to keep your patients and our students, healthy.

Sincerely,

School Nurse

✂-----✂-----✂-----✂-----✂-----

HEALTH CARE PROVIDER: Please complete and return to [*insert School Nurse, School & Address*]

I have checked (child’s name) _____ on (date) _____ with the following findings:

BMI: _____ Percentile: _____

Recommendations: _____

Signature/Title:

C: Guidelines for Measuring Non-Ambulatory Students

The following is a brief sample of guidelines when measuring non-ambulatory students with special health care needs. These guidelines were compiled by Judy Salkeld, Project Director at the Brown University Institute for Community Health Promotion.

Assessing growth status of students with genetic or other medical conditions requires special consideration. In the event that it is necessary to collect height and weight information in the school setting, be sure that the screening is conducted by a health care professional such as the school nurse, occupational therapist or physical therapist. In addition, be sure that parents/guardians are also informed in advance of the screening.

In general, the purpose of measurements for children who may have atypical growth patterns should be for monitoring the progress of the individual child over time, and not used to compare the child with others, even those who may have similar conditions. Remember that BMI is used to indicate measures of body fatness. With some conditions that involve muscle wasting and abnormal bone growth, the standard BMI reference percentile curves would not be an appropriate comparison point.

Possible options for assessing weight for children who cannot stand

- Use bucket seat scale if child is within size and weight limits for the equipment
- Use chair scale
- Use bed scale
- Use platform scale on which a wheelchair can be placed (need to subtract weight of wheelchair)
- Caregiver holds child on scale, then subtract caregiver's weight (make note of procedure used to obtain weight, due to potential for error)

Assessing stature and length in special situations

1. For children unable to stand but generally normal in body development and growth, recumbent (lying down) length can be taken, as follows:

- Two people needed
- One person (parent/caregiver) holds crown of head against headboard
- Check head position -- Frankfort plane (same as for standing height: head positioned so that imaginary perpendicular line can be drawn from the board surface through the middle of ear canal opening across side of face and lower bone of eye socket)
- Trunk and pelvis aligned straight along measuring board
- Second person straightens the legs, holds ankles together with toes pointed directly upward
- Move footboard firmly against soles of **both** feet
- Measurement made to nearest 1/8 inch or 0.1 cm
- Repeat measurements until two agree w/n 1/4 inch or 0.5 cm (1/2 cm)

2. For children with normal development but unable to stand, **Arm span** can be measured. The arm span, when accurately measured, should equal stature 1:1 if growth is normal.

This method is appropriate for children older than age five, with involvement of the lower body only (e.g. some children with myelomeningocele or lower body paralysis)

- Arm span measurement requires two people to complete measurements.
- The child extends both arms, while the anthropometer or measuring rod is held across the back, extended from the tip of one middle finger to the other (Trahms, 1997).
- Arms held perpendicular to body
- Anthropometer touching the tip of extended middle fingers of each right and left hand
- Repeat measurements
- Provides information about rate of growth (arm span to height ratio about 1:1 with typical development)

NOTE: Arm span measurements can be plotted on the CDC charts for stature-for-age or length-for-age.



This is a photo of correct technique for arm span measurement. Note that the child's arms are perpendicular to his body and the anthropometer is touching the extended middle fingers of the right and left hands.

3. For children unable to stand and/or have severe contractures, can measure **sitting height**

- Use a stadiometer and surface for sitting (typically 50cm x 40 cm x 30 cm, which can be rotated depending on size of child)
- Child sits on base as erect as possible
- Buttocks in contact with stadiometer board, as well as back and shoulder blades if possible, with back as straight erect as possible
- Legs hang freely, hands on thighs, knees pointed straight ahead
- Head positioned in same manner as standing height (Frankfort plane)
- Repeat measurement until two agree within 1/4 inch or 0.5 cm
- After measurement, subtract height of sitting surface from reading to estimate sitting height
- Can plot to indicate individual pattern of growth, even though percentile will not be indicated

4. Segmental lengths: Upper arm length and lower leg length

Some children for whom stature measurements are impossible, can use segmental lengths (for example, upper arm length and lower leg length) to monitor growth.

Upper arm length is not as affected by a high spinal lesion as stature. It is recommended for children with spina bifida who are bedridden or wheelchair bound (or for other children unable to stand or stretch out on the length board) ([Cloud, 1997](#); [Scott, 1997](#)).

- Arm is straight along side of body
- Elbow is bent so that lower arm is at right angle (90 degrees) to upper arm
- Flexible metal or sturdy plastic measure tape is placed with tip at end point of shoulder bone (acromial process)
- Tape is brought straight down along upper arm to tip (point) of elbow
- Record measurement to nearest 1/8 inch or .1 cm
- Repeat measurements should fall within 1/4 inch or .5 (1/2 cm)

5. For children with cerebral palsy or other conditions that cause or result in [contractures](#), lower leg length can be measured using either a steel or plastic tape measure or an anthropometer. This is a difficult measurement to take and, when taken, should be used with children ages 6-18 years ([Cloud, 1997](#); [Scott, 1997](#); [Chumlea, Guo, Steimbaugh, 1994](#)).

<http://www.cerebralpalsy-info.org/cerebralpalsy/growthchartsforcerebralpalsy.html>

These measurements may be plotted on the CDC charts for stature-for-age or length-for-age. Even if measurements fall below the 5th percentile, they establish a growth pattern over time. Reference data exist for some segmental lengths (e.g., knee height), however they are old and do not include children with special health care needs or children who are non-ambulatory (and therefore may have different growth patterns) ([Chumlea, et al, 1994](#)).



Cloud HH, Update on nutrition for children with special needs. *Top Clin Nutr* 1997; 13(1): 21-32.

Chumlea WC, Guo SS, Steinbaugh ML. Prediction of stature from knee height for black and white adults and children with application to mobility-impaired or handicapped persons. *J Am Diet Assoc* 1994; 94(12): 1385-1388.

Scott BJ, Artman H, Hill LA. Monitoring growth in children with special health care needs. *Top Clin Nutr* 1997; 13(1): 33-52.

Trahms C, Pipes P. *Nutrition in Infancy and Childhood*. 6th ed. 1997. Washington: McGraw-Hill.

D: Sample Resources

(This is not a comprehensive list and should not be interpreted as an endorsement of any particular product or website.)

School Resources

Massachusetts Comprehensive School Health Manual

<http://www.mass.gov/dph/fch/schoolhealth/index.htm> A comprehensive guide to school health services developed by the MDPH School Health Unit.

Resource Guide for Pediatric Overweight Treatment Services in Massachusetts

www.maclearringhouse.com/PDFs/Health&Wellness/NP2020.pdf This directory lists pediatric overweight treatment services available in Massachusetts and is recommended for health care providers and parents.

Action for Healthy Kids www.actionforhealthykids.org

The only non-profit organization formed specifically to address the epidemic of overweight, undernourished and sedentary youth by focusing on changes at school. State teams formed nationwide.

Healthy Choices http://www.mass.gov/dph/fch/nutrition/health_choice.htm

This nutrition and physical activity program for middle schools is a collaborative project of the Massachusetts Department of Public Health and the Jump Up and Go! Program of Blue Cross Blue Shield of Massachusetts.

Planet Health http://www.hsph.harvard.edu/prc/proj_planet.html

An interdisciplinary curriculum focused on improving the health and well-being of 6th - 8th grade students while building and reinforcing skills in language, arts, math, science, social studies and physical education.

Eat Well Keep Moving <http://www.hsph.harvard.edu/nutritionsource/EWKM.html>

EAT WELL & KEEP MOVING is a multi-faceted curriculum designed to use existing school resources to reinforce important messages about nutrition and physical activity to elementary school students through a variety of learning environments – from the classroom, cafeteria, and gymnasium to the school hallways, the home, and even community centers.

YourSELF www.fns.usda.gov/tn/tnrockyrun

YourSELF is a USDA Team nutrition publication developed especially for middle school students.

Community Resources

YMCA P.A.C. Program www.mass.gov/dph/fch/nutrition/ymca_overweight_initiative.htm

An after school overweight prevention program for pre-teens in which trained YMCA volunteers work one-on-one with kids to teach them about good nutrition and physical activity habits.

Shapedown www.shapedown.com

This site has information about the weight management program.

American Council for Fitness and Nutrition www.acfn.org

Provides toolkits for community leaders for programs to help tackle obesity.

Physical Activity Resources

Massachusetts Partnership for Healthy Weight www.mphw.org

Learn more about nutrition and physical activity programs in your community

The President's Challenge www.presidentschallenge.org/home_kids.aspx or www.fitness.gov

Incentives to help kids stay active and track progress with personal activity logs and presidential awards.

VERB www.verbnow.com

Provides kids with ideas on how to become physically active.

National Center on Physical Activity and Disability (NCPAD) www.ncpad.org

This site provides information and resources that can enable people with disabilities to become as physically active as they choose to be.

Special Olympics www.specialolympics.org

Special Olympics is an international nonprofit organization dedicated to empowering individuals with intellectual disabilities to become physically fit.

Diabetes Resources

National Diabetes Education Program www.ndep.nih.gov

Diabetes Education Resources and Tools

American Diabetes Association www.diabetes.org

Information on diabetes and control, nutrition and physical activity

National Institute of Diabetes & Digestive & Kidney Diseases (NIDDK) <http://www2.niddk.nih.gov/>

Research, health and funding information.

Eating Disorder Resources

MEDA: www.medainc.org

MEDA is a non-profit organization dedicated to the prevention and treatment of eating disorders and disordered eating.

Eating Disorder Referral and Information Center: www.edreferral.com

Referrals to eating disorder specialists nationwide.

National Association of Anorexia Nervosa & Associated Disorders: www.anad.org

Distributes listings of therapists, hospitals and informational materials; sponsors groups, conferences, research and a crisis hotline.

Presentations for School-Age Children

FoodPlay and Lil' Red Riding thru da Hood: www.foodplay.com

A nutrition and health theater and video organization presents live theater shows for school assemblies, conferences, and special events.

Share Our Strength's Operation Frontline: www.strength.org/what/operationfrontline

In their Kids Up Front Class, children ages 8-12 learn about nutrition and healthy snacking.

Organizations and Professional Associations

Massachusetts Partnership for Healthy Weight: www.mphw.org

Provides information to help communities and organizations to support their efforts in promoting healthy nutrition and active living environments

American Association for Health, Physical Education, Recreation and Dance: www.aahperd.org

The American Dietetic Association: www.eatright.org

The American Academy of Pediatrics: www.aap.org

General Resources and Other Websites

Massachusetts Health Promotion Clearinghouse: www.maclearinghouse.com

Provides free health promotion materials such as brochures, posters, fact sheets and many more for Massachusetts residents and health and social service providers.

BAM!: www.bam.gov

BAM! Body and Mind gives kids aged 9-13 the information they need to make healthy lifestyle choices. This site also serves as an aid to teachers with interactive, educational, and fun activities.

Team Nutrition: www.fns.usda.gov/tn

An initiative of the USDA Food and Nutrition Service, Team Nutrition provides information on nutrition education, healthy eating and physical activity with support and materials for teachers and foodservice professionals.

HealthierUS: www.healthierus.gov

Provides information on physical fitness, nutrition and making healthy choices.

My Pyramid: www.mypyramid.gov

Provides resources and information to use in developing education materials and understanding MyPyramid.

Bright Futures: www.brightfutures.org

Provides tools and resources on nutrition and physical activity for children.

Kidnetic: www.kidnetic.com

A healthy eating and activity website designed for kids ages 9-12 to inspire them to move toward healthier lifestyles.

Powerful Bones. Powerful Girls: www.cdc.gov/powerfulbones

Encourages girls ages 9-12 to establish lifelong, healthy habits that build and maintain strong bones.

KidsHealth: www.kidshealth.org

Separate areas for kids, teens, and parents – each with its own design, age-appropriate content, and tone.

EatFit <http://eatfit.ucdavis.edu/levelone/whatis.html>

Eatfit is a goal-oriented curriculum designed to challenge middle school students - in 5th, 6th, 7th, 8th and 9th grades, to improve their eating and fitness choices. It is adaptable for other learners, including after school programs, 4-H and other youth development programs.